

What is claimed is:

1. An electric machine (10), in particular for driving functional elements in a motor vehicle, which includes a rotor shaft (12) that is rotatably supported in a housing part (16) of a housing via a roller bearing (22, 20), an axial spring element (32) being located between the roller bearing (22, 20) and a rotor component (34) on the rotor shaft (12),  
5 wherein  
the axial spring element (32) includes an inner ring (40) and an outer ring (42), which are interconnected in an axially resilient manner, and the outer ring (42) is connected with the rotor component (34).
- 10 2. The electric machine (10) as recited in Claim 1,  
wherein  
the inner ring (40) and the outer ring (42) of the spring element (32) are interconnected via resilient segments (44).
- 15 3. The electric machine (10) as recited in one of the Claims 1 or 2,  
wherein  
the roller bearing (22, 20) includes an inner part (28), which accommodates the rotor shaft (12), and an outer part (24) supported in the housing part (16); the inner ring (40) of the spring element (32) bears axially against inner part (28) – and, in particular, not against the outer part (24) – of the roller bearing (22, 20).
- 20 4. The electric machine (10) as recited in one of the preceding Claims,  
wherein  
the resilient segments (44) are located in a spiral formation around the rotor shaft (40), and the inner ring (40) is rotatable relative to outer ring (42), particularly when an axial load is placed on the spring element (32).
- 25 5. The electric machine (10) as recited in one of the preceding Claims,  
wherein  
the inner ring (40) has a larger inner diameter (52) than the outer diameter (54) of the rotor shaft (12), and the inner ring (40) does not bear against the rotor shaft (12).

6. The electric machine (10) as recited in one of the preceding Claims,

wherein

the outer ring (42) includes a radial, circumferential outer wall (46) that forms a press connection (45) with a cylindrical recess (38) in the rotor component (34).

5 7. The electric machine (10) as recited in one of the preceding Claims,

wherein

the outer ring (42) is fixed in position axially on the rotor component (34) using a detent connection (70), a rear section (66), a bayonet connection, or a material deformation.

8. The electric machine (10) as recited in one of the preceding Claims,

10 wherein

the rotor component (34) is designed as an armature lamination core, and the housing part (16) is designed as a pole pot (14).

9. The electric machine (10) as recited in one of the preceding Claims,

wherein

15 the roller bearing (22, 20) is designed as a floating bearing (22, 20) located on the end of the rotor shaft (12), and the rotor shaft (12) is also supported in the housing via at least one fixed bearing.

10. An axial spring element (32), in particular as recited in one of the preceding

Claims,

20 wherein

the axial spring element (32) includes an inner ring (40) and a concentric outer ring (42) having a larger diameter (47), inner ring (40) and concentric outer ring (42) being interconnected in an axially resilient manner via elastic segments (44) located in a spiral formation, and the outer ring (42) includes a reinforcement (48, 50) for fixing the outer 25 ring (42) in position axially on a rotor component (34).